APEX Digital,Inc.
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FOR SERVICE CALL: 800-4-APEX-INC

HIGH DEFINITION PROJECTION TELEVISIONS

INSTRUCTION MANUAL

Rear Projection - GB43HD09, GBHD5109

HDTV Monitor

APEX DIGITAL™

APEXDIGITALINC.COM

Please read this manual carefully before operation.

BEFORE OPERATION

Dear Customer:
Congratulations! You have purchased one of the finest Color TVs on the market!
This manual will help you use the many exciting and useful features to make your TV viewing more enjoyable than ever before.
Before operating your TV set, please read all these safety and operating instructions completely and then retain for future reference.

Customer's Record
You will find the model number and chassis number on the back of your TV set.
Record these numbers in the spaces provided below.
Refer to them whenever you call upon your Apex dealer regarding this product.
Model Number: GB4308, GB5108
Chassis Number:

Safety Precautions

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER(OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The symbol is intended to alert the user to the presence of "dangerous voltage" within the product's enclosure that may be strong enough to cause an electric shock.
DO NOT TRY TO SERVICE THIS PRODUCT YOURSELF.

This symbol is intended to alert the user to the presence of important operating and maintenance instructions in the manual.

CAUTIONS:
TO PREVENT ELECTRIC SHOCK, DO NOT USE THIS POLARIZED PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLET UNLESS THE PRONGS CAN BE FULLY INSERTED INTO THE OUTLET TO PREVENT ANY EXPOSURE OF THE PRONGS ON THE POLARIZED PLUG.

Avoid displaying stationary images on your TV screen for extended periods of time. Stationary patterns generated by computer displays, video games, stock market reports, etc. can become permanently engrained on the picture tube. This damage is not protected by your warranty as it is the result of misuse. Should you wish to use your Apex Television to display still images, it is always advisable to reduce brightness and contrast settings. Never leave a video game or computer display unattended.

NOTE TO CABLE INSTALLER IN THE USA:
This reminder is provided to call your attention to Article 820 - 40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

BEFORE OPERATiON (continued)

Important Safety Instructions

CAUTION

PLEASE READ THESE INSTRUCTIONS, KEEP THESE INSTRUCTIONS AND HEED ALL WARNINGS. FOLLOW ALL INSTRUCTIONS.

Electrical energy can perform many useful functions. This TV set has been engineered and manufactured to assure your personal safety. However improper use can result in potential electrical shock or fire hazards. In order not to defeat the safe guards incorporated in this TV set, observe the following basic rules for antenna/ TV installation, use and servicing. All operating and use instructions should be followed.
Do not remove the cabinet cover. This may expose you to dangerous voltages. Refer all servicing to qualified service personnel.

Power Sources - The TV set should be operated only from the type of power source indicated on the TV set or as indicated in the Operation Manual. If you are not sure of the type of power supply in your home, consult your local power company. For TV sets designed to operate from battery power, or other sources, refer to the operating instructions.

Grounding or Polarization - Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding - type plug has two blades and a third grounding prong. The wide blade or the third prongm o 0.0101omas two 6.7(sE wide blndiF

Alternate Warnings - This plug will only fit into a grounding-type power outlet. This is a safety feature.
If you are unable to insert the plug into the outlet, contact your electrician to have a suitable outlet installed. Do not defeat the safety purpose of the grounding plug.

Water and Moisture Warnings - Do not use the TV set near water-for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like. The TV set should not be exposed to dripping or splashing and no objects filled with liquids, such as vases, should be placed on the TV set.

Ventilation - Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the TV set and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the TV set on a bed, sofa, rug,or other similar surface. This TV set should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

BEFORE OPERATiON (continued)

Precautions (continued)

Damage Requiring Service - Unplug the TV set from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. If the power cord or plug is damaged or frayed.
b. If liquid has been spilled or objects have fallen into the TV set.
c. If the TV set has been exposed to rain or water.
d. If the TV set has been subject to excessive shock by being dropped, or the cabinet has been damaged.
e. If the TV set does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the TV set to its normal operation.
f. When the TV set exhibits a distinct change in performance-this indicates a need for service.

Servicing - **Do not** attempt to service the TV set yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Replacement Parts - When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original parts. Unauthorized substitutions may result in fire, electric shock, or other hazards.

Safety Check - Upon completion of any service or repairs to the TV set, ask the service technician to perform routine safety checks to determine that the TV set is in proper operating condition.

Disposal - When the TV set reaches the end of its useful life, improper disposal could result in a picture tube implosion. Ask a qualified service technician to dispose of the TV set.

ANTENNA

Outdoor Antenna Grounding- If an outdoor antenna is installed, follow the precautions below.

An outdoor antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can come in contact with such power lines or circuits.

WHEN INSTALLING AN OUTDOOR ANTENNA SYSTEM, EXTREME CARE SHOULD BE TAKEN TO KEEP FROM CONTACTING SUCH POWER LINES OR CIRCUITS AS CONTACT WITH THEM IS ALMOST INVARIABLY FATAL

Be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code in USA and Section 54 of the Canadian Electrical Code(ANSI/NFPA 70) in Canada provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

Example of antenna grounding according to National Electrical Code (NEC)

BEFORE OPERATION (continued)

FCC Warning

Class B Computing Device

Information to User

This equipment has been tested and found to comply with the limits for a class B digital device pursuant to part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or TV reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1) Reorient or relocate the receiving antenna.
2) Increase the separation between the equipment and receiver.
3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4) Consult the dealer or an experienced radio/TV technician for help and for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful:"How to Identify and Resolve Radio -TV Interference Problems". This booklet is available from the US Government Printing Office. Washington, D. C 20402, Stock No. 004-000-00345-4.

FCC Warning

The user is cautioned that changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

NOTE: In order for an installation of the product to maintain compliance with the limits for a Class B device, shielded cables must be used.

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* The OSD and figures shown in this manual may be somewhat different from the actual situation.

INTRODUCTION

This manual is for models GB43HD09 and GB51HD09.
Model GB51HD09 is used for illustration purposes.

Features

Some of features that you will enjoy with your new projection TV include:

- **HDTV Monitor:** Enables you to receive the 1080i, 720p, 480p, and 480i digital TV formats. By using the YP_BP_R1/YP_BP_R2 IN jacks, you can connect a DTV (digital television) receiver to view DTV programs.
- **3D Y/C Comb Filter**
- **Film mode:** Using the 3:2 Pulldown technology, the Film Mode feature allows you to obtain a smooth picture movement when playing back movie or other video sources on film.
- **Browsing Channel :** Allows you to view and choose channels from all receivable channels scrolling on the screen without leaving the current channel.
- **Dual Tuner PIP:** Allows you to watch two moving programs at the same time.
- **Auto Volume Control (AVC) :** Equalizes volume levels so there is consistent output between programs and commercials.
- **BTSC Sound System:** Enjoy stereo, bilingual and mono programs.
- **BBE Sound Enhancement :** This function can characterize the sound, generate the playback sound almost like natural sound.
- **DBE Sound Enhancement :** You can make bass richer by boosting low frequency.
- **Component Video Inputs :** Offers the best video quality for DVD (480p, 480i) and digital set-top box (1080i, 720p, 480p, 480i) connections.
- **S-VIDEO Inputs:** Provides a high - quality image for connected equipment.

INTRODUCTION (continued)

- **On/off Timer:** Turn on/off your projection TV or turn on a certain channel number at the specified time.
- **HELP Function**
- **Graphic OSD**
- **Protective Shield**
- **1st Surface Mirror**
- **English/France/Spanish Menu**
- **User Convergence Adjustment:**Allows you to adjust convergence.
- **V-Chip Function:** V - Chip technology allows parents to block unsuitable programming for younger viewers.
- **CCD function:**Allows you to select from three closed caption modes (for programs that are broadcast with closed captioning).

Using this manual

We recommend that you carefully review the contents of the following three section in the order shown to ensure that you fully understand the operation of your new projection TV.

1 Installing and Connecting the Projection TV
This section guides you through your initial setup. It shows you how to install your projection TV, to connect your new components and to connect the antenna and cable.

2 Using the Feature
This section shows you how to begin using your new projection TV. It also shows you how to use your remote control.

3 Using the menus
This section teaches you how to access on-screen menus and adjust your projection TV settings.

INTRODUCTION (continued)

Inserting Batteries into the Remote Control

Insert two LR03WCH batteries by matching the ⊕ and ⊖ on the batteries to the diagram inside the battery compartment.

* Remove the batteries to avoid damage from possible battery leakage whenever you anticipate that the remote control will not be used for an extended period.
* Handle the remote control with care. Avoid dropping it, getting it wet, or placing it in direct sunlight, near a heater, or where the humidity is high.
* Your remote control can be programmed to operate most video equipment (See “Programming the Remote Control”on page 36).

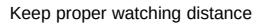
Carrying the Projection TV

Carrying the projection TV requires two or more people.
The projection TV has been equipped with casters for easy movement on a hard surface.
Please move your projection TV using the casters.

INSTALLATION (continued)

Installing the Projection TV

- Please read the “Safe Precautions”and “Specifications and Accessories” completely before installation.
- It is recommended to watch projection TV in soft and indirect light and face center of the screen for optimum watching effect.
- Allow enough space (at least 10cm)between the projection TV and the wall for proper ventilation.
- Avoid excessively warm or wet locations to prevent possible damage to the cabinet or components.



- To prevent the projection TV from toppling, there is supports under front panel and real panel of the projection TV. Please contact with your dealer if there is no such supports when you first open the packing carton.

After installation,plug the projection TV in the supply socket.

INSTALLATION (continued)

Connector Types

Your may find it necessary to use some of the following connector types during set up.

Coaxial cable
Standard TV cable and antenna cable
Plug Type

Push into connection.

Screw-on Type

Screw into connection.

S Video cable
High quality video cable for enhanced picture quality

Align guides and push
Into connection.

Audio/Video cable

Push into connection.

Video-Yellow
Audio(Left)-White
Audio(Right)-Red
Some DVD Players are equipped with the following three video connectors:
Y - Green
$P_B(C_B,C_b$ or B-Y)-Blue
$P_R(C_R,C_r$ or R-Y)-Red

INSTALLATION (continued)

Projection TV Front panel

MAIN POWER SWITCH

POWER indicator (Green)
STANDBY indicator (Red)
REMOTE indicator (flicker)

✻ The front panel allows you to do the basic operations without using the remote control. Similar functions on the front panel please refer to the use of the remote control.

Projection TV Rear panel

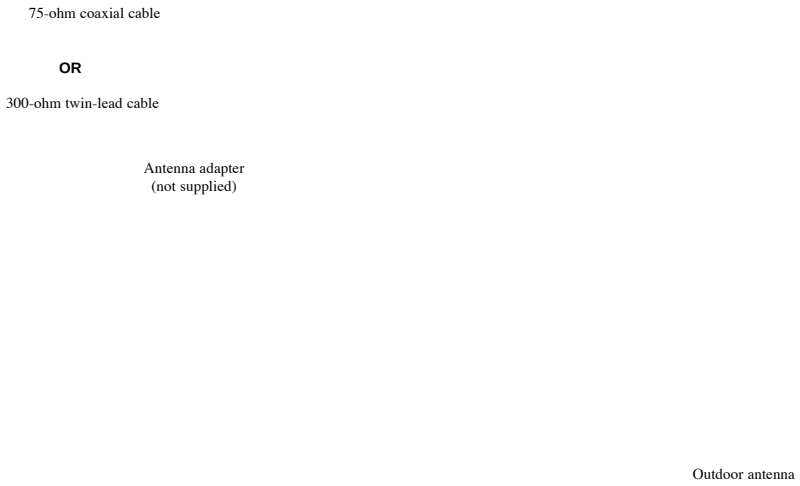
AIR

CABLE

INSTALLATION (continued)

Connecting the Antenna

An outdoor antenna or CATV is recommended for the best reception. The antenna type and its location differ dependent on local conditions.



- ✻ It is recommended that a 75Ω coaxial cable be used in order to eliminate possible interference and noise which may occur due to nearby radio transmissions.
- ✻ When using a 300Ω twin - lead feeder, connect it to a 300Ω / 75Ω converter and insert the converter into the projection TV's CABLE IN terminal.
- ✻ Connect an outdoor antenna referring to the above figure. Set up a lightning arrester and check it regularly when an outdoor antenna is used.
- ✻ The antenna cable should not be tied together with other wiring.
- ✻ The two RF jack allow you to switch signal between Cable and Air input.

INSTALLATION (continued)

Connecting an AV Receiver

Please turn off the power supply of the projection TV and external equipment before connection. Read the operation manuals of the external audio/video equipment that will be connected to the projection TV completely. You can connect a stereo system to the MONITOR OUT terminals on the projection TV to enjoy a high quality sound, or connect a VCR to the projection TV to record programs. The MONITOR OUT terminals output the audio and video signals being monitored on the projection TV(main picture.)

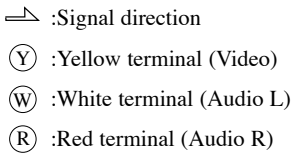
* No output is available at MONITOR OUT when the signal is from YP_BP_R1 or YP_BP_R2 of the main picture.

INSTALLATION (continued)

Connecting a VCD, VCR or Camcorder

Disconnect all power before making any connections.
You can connect video equipment such as VCD, VCR or camcorder to the projection TV and enjoy the high-quality picture.
If your video equipment has an S-VIDEO OUT terminal, connect it to the SVHS IN terminal of the projection TV. If not, connect it to the VIDEO IN terminal.

Front panel



✻ If you have a mono camcorder, connect its left audio output to the projection TV's AUDIO L (INPUT) jack of AV1, AV2 or FAV.

INSTALLATION (continued)

Connecting a VCD Player with Component Video Connectors

Your DVD player has component (Y,B-Y, and R-Y)jacks.
Disconnect all power before making any connections.

1 Using three separate component video cables, connect the DVD player's Y, B-Y and R-Y jacks to the YP_BP_R1 or YP_BP_R2 jacks on the projection TV.

2 Using an audio cable, connect the DVD player's Audio OUT jacks to the projection TV's YP_BP_R1 or YP_BP_R2 AUDIO IN jacks.

3 Switch to YPbPr1 or YPbPr2 mode, press the VIDEO button.

Connecting a VCD Player with A/V Connectors

You DVD player does not have component (Y,P_B,and P_R) jacks.
Disconnect all power before making any connections.
If you video equipment has an S-VIDEO OUT terminal, connect it to the SVHS IN terminal of the projection TV. If not, connect it to the VIDEO IN terminal.

INSTALLATION (continued)

Connecting a Digital TV Receiver

Disconnect all power before making any connections.

1 Using three separate component video cables, connect the digital TV set-top box's Y, P_B and P_R jacks to the YP_BP_R1 or YP_BP_R2 jacks on the projection TV.

2 Using an audio cable,connect the Digital TV Set-top box's Audio OUT jacks to the projection TV's YP_BP_R1 or YP_BP_R2 AUDIO IN jacks.

3 Press VIDEO to switch to YPbPr1 or YPbPr2 mode.

* This projection TV is not compatible with digital TV receivers configured with RGB or VGA output connectors.
* If you digital TV set-top box has both VIDEO OUT and S-VIDEO terminals, you can also connect them to the corresponding IN terminal of the projection TV.

Using the Features

Using the Remot control

Remote Control

* Instructions in this manual are written for the remote control.Similar controls are also found on the projection TV console.
* The button design and specifications of the remote control are subject to change without notice.
* Many TV features can be accessed directly through the remote control.**Press “TV”(function button)on the remote control first to enter TV mode before operating the remote control.**

FEATURES (continued)

Power On / Off

Main power switch button

Plug in the supply socket and press on the projection TV to turn on the projection TV, and the indicator becomes green.

Power switch button on remote control

Press on the remote control, the projection TV is turned off and enters STANDBY mode .The indicator becomes red.

Power switch button on remote control

In the STANDBY mode, press or CH+/- on the remote control or P+/- on the front panel to turn on the projection TV. The indicator becomes green.

Main power switch button

To turn off the projection TV completely, press .

✻ The indicator flickers when receiving the signal emitted by the remote control (It does't flicker in user convergence adjustment mode).

Auto off without signal reception

When a channel has no signal (e.g. the TV station fails to send signals) and blue background appears, the projection TV will automatically enter the STANDBY mode if no button is pressed within 15 min. If Off Time is preset and the time left is less than 15 min., the projection TV will carry out first the Off Time .

✻ The function of auto -off without signal doesn' t work in the AV mode.

FEATURES (continued)

Watching the TV

1 TV (FUNCTION)
Activates the remote control for use with the projection TV.

2 ANT (Antenna)
Press ANT first to display the current antenna mode. Press repeatedly to change between the Cable and Air input.

3 POWER
Turns on or off the projection TV.

4 100+ and 0~9
Use for direct channel selection.
To enter a three - digit channel number when “Anetnna” is set to “Cable”, press 100+ to call up “1--”, then press 0~9 to enter the last two numbers.

- ✻ It is invalid if you enter channel number more than 69 (or less than 2) in the Air mode or more than 125 (or less than 1) in the Cable mode.
- ✻ The channel number is red when entering by direct channel selection buttons and the channel is set to “Skip ON”.
- ✻ The projection TV will return to the TV mode if you press Channel Number in the AV mode.

5 CH+/-
Press to scan through the channels (+ up or -down).

6 VOL +/ -
Press to adjust the volume (+ up or - down).

7 RECALL
Press to alternate or jump back and forth between two channels or sources. The projection TV will jump between the current channel and the last channel selected.

8 MUTE
During watching projection TV program, press MUTE to eliminate sound. Press it again to resume sound.

- ✻ Pressing VOL + can also cancel the MUTE function.
- ✻ Pressing VOL - can decrease the volume in the MUTE mode ,but not cancel the MUTE mode.

FEATURES (continued)

9 STILL

Press STILL repeatedly and the picture switches between the still and moving modes.

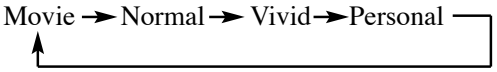
* STILL is not available in YPbPr1 or YPbPr2.

10 DISPLAY

Press to display the current program status, such as the channel number, sound sysstem, antenna system and current time (if set). To turn the display off, press it again.

11 P-MODE

Press repeatedly to scroll through the following available video inputs:



Movie: Select to display a finely detailed picture for low light environment

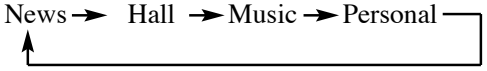
Normal: Select to display a standard picture for normal viewing environment

Vivid: Select for enhanced picture contrast and sharpness.

Personal:User-set picture mode.

12 S-MODE

Press repeatedly to directly choose one of four different sound modes that best suits the program you are watching.



News: News /dialogue

Hall: Hall audio effect

Music: Concert hall audio effect

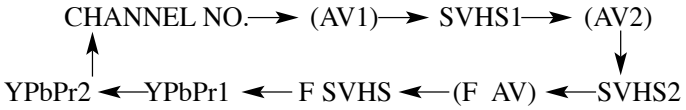
Personal: User-set sound mode

13 BBE

Press to turn on or off the BBE effect mode.

14 VIDEO

Press repeatedly to select projection TV signal sources shown as the follows:



FEATURES (continued)

CHANNEL NO.	Radio Signal
AV1	AV1 Signal
AV2	AV2 Signal
F AV	Front AV
SVHS1	S-VIDEO Signal IN 1
SVHS2	S-VIDEO Signal IN 2
F SVHS	Front S-VIDEO Signal IN
YPbPr1	DVD Component Signal and DTV Signal IN 1
YPbPr2	DVD Component Signal and DTV Signal IN 2

* SVHS prevails when inserting AV-Video and SVHS simultaneously (For detail, see page 31).
* If inserting SVHS and turning "S Ident" to ON, the corresponding AV1, AV2 or F AV will not be displayed (For detail, see page 30).
* To watch component signal and DTV signal, switch to YPbPr1 or YPbPr2 channel.

15 TIMER

You may use this function to watch the desired program at the preset time and turn on/off your projection TV at the preset time.

Call up the item to be adjusted by pressing CH+/- and adjust it by VOL+/-.

* The other items in TIMER SET menu can only available after you finish Clock setting.
* "On Set", "Order Set" and "Off Set" can set to OFF/ONCE/ ALWAYS respectively. Your setting is one-time after your projection TV is set to ONCE, and last forever after set to ALWAYS unless you turn off the main power supply.
* "On Timer" and "On Channel" are not available when "On Set" is set to OFF.
  "Order Timer" and "Order Channel" are not available when "Order Set" is set to OFF.
  "Off Timer" is not available when "Off Set" is set to OFF.
* The timer setting will be cancelled automatically after turning off the main power supply of the projection TV.

16 HELP

Press HELP to display the remote control profile. Press it again to exit.
Press CH+/- to highlight a button, and its function is displayed.

Watching the Digital TV

When you have connected the DTV receiver, you can enjoy digital TV programs. This projection TV is capable of receiving the 1080i,720p,480p and 480i digital TV formats.

* This projection TV is not capable of display a native 720p format signal. When a 720p format signal is received, it make down-conversion.

To view a digital TV program

1 Connect the DTV receiver to YP_BP_R1 or YP_B

Using Browsing Channel Function

Allows you to display multiple channels and select one directly.

1 Press on the remote control to browse channel and press it again to exit.
The first nine receivable channels will appear one after another.

2 When the channel becomes moving picture and channel number is yellow, press VOL+/-, the selected channel will enlarge for normal viewing.

3 At the receiving interval of the first nine channel and second nine channel, press CH+/- to select the channel that you wish to wiew. The selected channel becomes moving picture and channel number is yellow, press VOL+/-, the selected channel will enlarge for normal viewing.

* Browsing Channel will not function when " Parental Lock" is set ot ON or in AV mode.

FEATURES (continued)

Watching PIP

1 PIP ON/OFF

Press to turn on or off PIP function.

2 LOCATION

Press to change the position of the sub-picture. The position of the sub-picture will change in the order of lower right, lower left, upper left and upper right corner of the screen.

3 SIZE

Press to adjust the size of the sub-picture. The sub-picture will change between SMALL SIZE and BIG SIZE cyclically by pressing it repeatedly.

4 SWAP

Press to switch between the main and sub-picture.

5 PIP VIDEO

Press to realize switching between AV and TV.

* YPbPr1 and YPbPr2 are not available in PIP.

6 PIP CH+

Press to select a upper channel number for PIP.

* You can only select the programs that are auto-searched and stored by pressing PIP CH+.

7 PIP CH-

Press to select a lower channel number for PIP.

* You can only select the programs that are auto-searched and stored by pressing PIP CH-.

8 PIP STILL

Press to make PIP picture still, and presss it again to make the picture movable.

9 PIP Quality Adjustment Menu

When PIP is set to ON, press MENU to display the following menu:

Press CH+/- to highlight the desired item and press VOL+/- to adjust.

Using the Menus

Overview

Many functions are realized through menu operation. Press MENU/DISPLAY repeatedly and displays the following menus:

After selecting a menu, press CH+/- to highlight the desired item and press VOL+/- to adjust.

* Items with the mark of " ▶ " indicate that there is a sub-menu (except Auto Search).
* PIP menu will not appear by pressing MENU/DISPLAY if PIP doesn't turn on.
* Only Video menu and Audio menu appear when switching AV to YPbPr1 or YPbPr2.

MENUS (continued)

Using the Video Menu

Press MENU to enter Video menu.
Press CH+/- to highlight the item to be adjusted.
Press VOL+/- to adjust parameters.

Item	Adjustment Effect	
	-	+
Brightness	Darker	Brighter
Color	Lighter	Deeper
Contrast	Lower	Higher
Sharpness	Lower	Higher
Tint	More Purple	More Green
Advance	Press VOL+/- to turn on the next menu. Press CH+/- to select an adjustment, and press VOL+/- to adjust parameters.	

Advance sub-menu:

LT1: Luminance Transience Improvement ON/OFF
* “Sharpness” doesn’t work when LTI is OFF.
CTI: Chrominance Transience Improvement ON/OFF
TFNR: Temporal Frame-filtering Noise Reduction Low/Middle/High/OFF
VSM: Velocity Scan Modulation Low/Middle/High/OFF
Sharpens picture definition to give a sharp and clear edge.
BLX: Black Level eXtender ON/OFF
SCC: Skin Color Correct ON/OFF
ETI: Enhance Tube Image ON/OFF
PM: Picture Motion ON/OFF
When it is set to ON, the picture will move slightly left or right automatically about every 20min, which can reduce the risk of image retention on your projection TV.

MENUS (continued)

CTA: Color Temperature Adjust Normal/Cold/Warm
You can select Cold, Normal or Warm that best suits the program you are watching.
Cold: Select to give the white colors a blue tint.
Normal:Select to give the white colors a neutral tint.
Warm: Select to give the white colors a red tint (NTSC-Standard).
FILM:Film mode ON/OFF
Recommended for 24 frame-per-second films.

Using the Audio Menu

Press MENU to enter Audio menu.
Press CH+/- to highlight the item to be adjusted.
Press VOL+/- to adjust parameters.

Item	Adjustment Effect	
	VOL-	VOL+
Treble	Decrease	Increase
Bass	Decrease	Increase
Balance	Increase left speaker	Increase right speaker
Surround	ON/OFF	
DBE	ON/OFF	
AVC	Auto volume control ON/OFF	
Audio Out	Press VOL+/- to turn on the next menu. Press CH+/- to call up the item to be adjusted, and press VOL+/- to adjust. * You can not select Audio Out when in YPbPr1 or YPbPr2.	
MTS	Stereo:Select for stereo reception when viewing a program broadcast in stereo. SAP: select to automatically switch the projection TV to second audio programs when a signal is received. (If no SAP signal is present, the projection TV remains in Stereo mode.) Mono:Select mono reception * You can not make selection when receiving Mono signal. * MTS can not be selected in AV mode and has only Stereo mode.	

MENUS (continued)

Audio Out sub-menu:

When Fixed is set to OFF, the volume output from your audio system can still be controlled by the projection TV's remote control. When Fixed is set to ON, the volume output of the projection TV is fixed. Use your audio receiver's volume control to adjust the volume through your audio system.

Using the System Menu

Press MENU to enter System menu.
Press CH+/- to highlight the item to be adjusted.
Press VOL+/- to adjust parameters.

Language:You can switch the languages for the On-Screen-Display to English, French to Spanish.

Blue Back: Blue back ON/OFF

If " Blue Back" is set to ON, the projection TV will display a soft blue backbround when no signal received.

If " Blue Back" is set to OFF, and even nosie dot will be displayed on the screen when no signal is in the TV mode, and the screen becomes dark when no signal is in the AV mode.

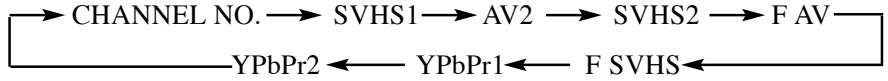
* "Blue Back" isn't available for YPbrPr1 and YPbPr2. The screen background becomes black without signal reception in YPbPr1 and YPbPr2.

S Ident: S-Video indentfication ON/OFF.

When it is set to ON, press VIDEO to skip the related AV (AV1,Av2 and FAV) if inserting the related SVHS.

When it is set to OFF, pressing VIDEO cannot skip the related AV if inserting the related SVHS.

For example, when SVHS1 is inserted and " S Ident" is set to ON, the projection signal source will change in the following order by pressing VIDEO (AV1 is skipped)



MENUS (continued)

* When both AV-Video and SVHS are inserted , and " S Ident " is OFF, SVHS will prevail, and the related AV-Video will display SVHS signal in monochrome. To watch AV-Video, unplug SVHS.

CCD:

"OFF"	Turns off Caption Vision.
"CC1,CC2,CC3,CC4"	Displays a printed version fo the dialog or sound effects of a program. (Should be set to CC1 for most programs).
"T1 ,T2 ,T3 ,T4"	Display network/station information presented using either half of the whole screen (if available). For closed captioning ,set to CC1.
"XDS" (eXtended Data Service)	Display a network name, program name, program length, and time of the show if the broadcast offers this cervice.

* If OSD appears on the screen, there is no CCD display.
* CCD function is not available in PIP, sub-picture in Double View, YPbPr1 and YPbPr2.

Convergence Adjustent

The projection tube image appears on the screen in three colore (red, green and blue).If they do not converge, the color is poor and the picture blurs. Before you use your projectio TV, be sure to adjust the convergence. The convergences of the projection TVs have been adjusted before they go out of factory. If you are not satisfactory, adjust the convergence according to the following procedures.

* Unshielded speakers or other metallic objects can cause picture distortion if placed close to the projection TV.

Press CH+/ - to highlight the item of Convergence in System Menu, and press VOL+/ - to enter convergence adjustment mode.

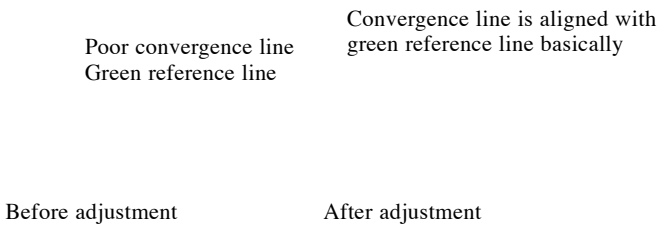
[1] Press "5" first to select the center point on the screen to be adjusted shown as the following figure.

[2] Press MENU to select red or blue convergence adjustment.

When four arrows on the lower left corner become red, it indicates red convergence is ready for adjustment, and when they become blue, it indicates blue convergence is ready for adjustment.

MENUS (continued)

3 Press CH+/ - to adjust cross cursor vertically, and VOL+/ - to adjust horizontally so that the red and blue cross cursor is lined with the green one , and the cross cursor is lined with the green one , and the cross cursor becomes white.



* When “MAX” is displayed on the screen, it indicates that the adjustment is maximum.

4 After completion of above adjsutment, press “1”, “2”, “3”, “4”, “6”, “7”, “8” , or “9” to adjust the other points on the screen.
Repeat Step 2 and 3 to align the red or blue cross cursor with the green one.

5 To save the adjusted data, press POWER.
If you are not satisfactory with the adjustment result, do not press POWER to save the data. Press “0” to load the factory- set data in order to resume the previous status.

6 Press PIP STILL to exit convergence adjustment mode.

V CHIP sub-menu :

You may prevent children from watching programs not suitable for them, such as sexual or violence program.

Press VOL+/ - to enter V Chip sub-menu. Four-digit password is required. The original password is “6688”

MENUS (continued)

The old password is invalid after change.
If you forget your password, see “Lost password” on page 41.
The next menu will turn on after you enter correct password.

Parent Lock : ON/OFF
Parent lock is OFF , No programs are blocked from viewing.
No Rating : Block/Unblock
No Rating is block. Blocks all programs and movies that are broadcast without a rating.
No Rating is unblock. Allows programs and movies that are broadcast without a rating.
Ext Source : Block/Unblock

Rating options sub-menu
Press CH+/- to highlight one of the items, and press VOL+/ - to dispay U or B on the screen. A“U” indicates a rating which is unblocked and a “B” indicates a rating which is blocked.
TV Guoidelines : Press VOL+/ - to enter TV Guidelines sub-menu.

TV-Y : All children
TV-Y7: Directed to older children
TV-G : General Audience
TV-PG : Parental Guidance suggested
TV-14 : Parents Strongly Cautioned
TV-MA : Mature Audience only

FV : Fantasy Violence
D : Suggestive Dialogue
L : Strong Language
S : Sexual situations
V : Violence

MENUS (continued)

Movie Ratings : Press VOL+/- to enter Movie Ratings sub- menu.

G: All children and General Audience
PG: Parental Guidance suggested
PG-13: Parental Guidance for children under 13
R: Restricted viewing , Parental guidance is suggested for children under 17
NC-17 : No one 17 and under allowed
and X

Change the Password sub-menu :
Press VOL+/ - to enter Change the Password sub-menu.

* The settings of V Chip for main picture work for PIP and sub-picture.

Using Tune Menu

Channel : Press VOL+/ - to select the channel you want to adjust.
3D Comb: 3D YC comb filter ON/OFF
*3D Comb is invalid when receiving monochromatic signal.

Skip: ON/OFF

Skip ON Enable you to skip undesirable program by pressing CH+/-.

Skip OFF Enable you add or resume the skipped channel.

* The channel number is red when “Skip” is ON, and green when “Skip” is OFF.

Antenna : Air/Cable Allows you to select antenna input mode.

Auto Search : The projection TV will auto-search and save channels automatically by pressing VOL+/-. The channel without program will be skipped . The skipped channel won’t be displayed even if pressig CH+/- or using Browsing Channel function.

Pressing VOL+/- or MENU stops auto - searching.

* When “Antenna” is set to the “Air” mode, the projection TV will auto search from channel number 2 to 69, and when set to the “Cable” mode, it will search from 1 to 125.

Other Information

Programming the Remote Control

Remote-control switchover

Press VCR/DVD, SAT/CABLE or AUX to select the device you want to control.

To program the remote control

Press and hold VCR.DVD, SAT/CABLE or AUX for over 2 seconds until the LED on the remote control turns off. Release the button the LED will light again (the remote control enters the PROGRAMMING mode).

Enter three-digit code number for your equipment. If the correct code number is entered, the LED blinks three times. If you enter a code not listed below, or you press any other buttons than SEARCH and 100+, the LED turns off.

To search codes

Press ad hold VCR/DVD,SAT/CABLE or AUX for over 2 seconds unil the LED turns off. Release the button (the LED wil light again) and the remote control enters the PROGRAMMING mode.

Press SEARCH.

Press CH+/- to search codes downwards or upwards. Each time you press CH+/-, the code number decreases or increases by 1 while the remote control sends the code number for POWER button on your device.

If the desired code number is found,press 100+ to program the code for your device until the LED blinks three times.Then the remote control exits from the PROGRAMMING mode and returns to norml operation.

Or press any other button to exit from the PROGRAMMING mode after the LED blinks rapidly eight times, and the operation is not active.

To check the current code number

Press and hold VCR/DVD, SAT/CABLE or AUX for over 2 seconds until the LED turns off. Release the button (the LED will light again) and the remote control enters the PROGRAMMING mode.

Press 100+ .

You may read the code numder according to the LED display status as follows.

Code Number			LED Display Status (2 sec. time interval between every two digits.)		
First - digit	Second - digit	Third - digit	First - digit	Secod - digit	Third - digit
0	0	0	Blinks rapidly once	Blinks rapidly once	Blinks rapidly once
1	0	6	Blinks once	Blinks rapidly once	Blinks six times
0	4	3	Blinks rapidly once	Blinks four times	Blinks three times
1	5	0	Bliks once	Bliks five times	Bliks rapidly once

* If there is no operation within 20 seconds during the steps mentioned above, the remote control will automatically exit from the appropriate operation.

INFORMATION (continued)

DVD CODES

Brand	Code Number
APEX	300,395
ChangHong	300,301,302,303
Aiwa	312
Hitachi	313
JVC	309,314
Magnavox	308
Mitsubishi	307
Panasonic	315,386
Philips	308,316,317,318
Pioneer	306,311
Proscan	310
RCA	310
Sanyo	319
Sony	305,320,321
Toshiba	304

LD CODES

Brand	Code Number
Magnavox	322
Panasonic	326,327
Pioneer	328
Sony	323,324,325

VCR CODES

Brand	Code Number	Brand	Code Number
Admiral	373	Craig	331,337,376
Aiwa	340,387,388	Curtis Mathes	332,336,361,372
Akai	350,379	Daewoo	349,363,377,379,380
Amstrad	340	Daytron	349
ASA	357	DBX	334,374
Audio Dynamics	334,374	Dimensia	384
Audiovox	376	Dynatech	340
Broksonic	375,377	Electrohome	330,376,381
Bush	339	Electrophonic	376
Calix	376	Emerson	330,338,340,345,375,376,377,381
Candle	336,376	Fisher	329,331,340,341,351
Canon	361,362	Funai	377
Capeheart	349	GE	32,337,361,372
Carver	343	Go Video	359,360,389
CCE	379	Goldstar	336,376,379
Citizen	336,337,376,379	Goodmans	339

INFORMATION (continued)

Brand	Code Number	Brand	Code Number
Gradiente	378	Proscan	332,372
Grundig	357	Quasar	354,355,361
Harley Davidson	378	Radio Shack	329,330,331,341,346,373,376,378,381
Harman Kardon	364	Radix	376
Hinari	339	Randex	376
Hitachi	340,342,347,350	RCA	332,337,342,347,365,372
Instant Replay	385	Realistic	340,341,346,361,373,376,378,381
JC Penney	333,334,337,347,350,361,364,374,376	Ricoh	369
Jensen	342,350	Salora	356
JVC	333,334,336,350,352,358,374	Samsung	337,363
Kenwood	333,334,336,350,352,358,374	Sanky	373
Kodak	376	Sansui	334,350,352,353
Lloyk	340,378	Sanyo	331
Logik	339	SBR	357
LXI	376,390,391,392,393,394	Schneider	339
Magnavox	343,344,357,361	Scott	338,345,375,377
Marantz	333,334,336,343,357,361,374	Sears	329,331,341,342,347,351,376
Marta	376	Sharp	330,346,381
MEI	361	Shintom	339
Memorex	331,340,361,373,376,378	Sony	367,368,369,370,371
MGA	330,345,356,381	STS	347
Minolta	342,347	Sylvania	340,343,344,345,356,361,378
Mitsubishi	330,342,345,352,356,358,381	Symphonic	340,378
Motorola	373	Tandy	340
MTC	340,378	Tashiko	340,376
Mutitech	337,339,340,378	Tatung	333,350,353
NEC	333,334,336,350,352,358,364,374	Teac	333,340,350,378
Nikko	376	Techoics	348,361
Olympus	383	Teknika	340,361,376,378
Optimus	373,376	Toshiba	338,341,342,345,356,363
Optonica	346	Totevision	337,376
Panasonic	335,348,361,365,366	Vector Tesearch	334,364
Pentax	336,342,347	Victor	334,358
Perdio	340	Videosonic	337
Philco	343,344,361	Video Concepts	334
Philips	343,346,357,631	Wards	330,331,337,338,339,340,342,346,347,361,373,376,378,381
Pilot	376	XR-1000	378
Pioneer	334,342,352,358,374	Yamaha	333,334,336,350,364
Portland	349	Zenith	370,371

INFORMATION (continued)

CABLE CODES

Brand	Code Number
ChangHong	500
ABC	508,509,510,511
General Instrument	525
Hamiln	541,542,545,546,547
Hytex	508
Jerrold	506,510,511,512,513,520,525,548,549,550
Movie Time	515
NSC	515
Oak	501,508,516
Panasonic	502,507,544
Philips	514
Pioneer	503,504,517
RCA	524
Scientific Atlantic	504,505,518,519
StarCom	511
Tocom	509,512
TV86	515
United Artists	508
Viewstar	514,515
Zenith	504,521,522,523

CABLE CODES

Brand	Code Number
GE	528,531,532
Genernal Electric	526
Hitachi	534,535
Hughes	537,538
JVC	533
Magnavox	536
Panasonic	543
Philips	536
Proscan	528,531,532
RCA	528,531,532,540
Sony	529,539
Toshiba	527,530

CABLE CODES

Brand	Code Number
ChangHong	700,701
Aiwa	702
Carver	709
Fisher	709
JVC	706,712
Magnavox	708
Memorex	704
Panasonic	710
Pioneer	703,704
Proton	708
Quasar	710
RCA	707,713
Sony	702,705
Techniques	710
Toshiba	711
Victor	706

INFORMATION (continued)

Operating Other Components with Your Projeciton TV Remote Control

Operating a VCR

Press	To
	Power on the VCR
	Select channels directly
	Change channels
	Play video tape
	Stop
	Search forward or backward
	Pause
	Record

at the same time

Operating a laser disc player

Press	To
	Power on the laser disc player
	Search chapters forward or backwad
	Play disc
	Stop
	Pause

Operating a DVD player

Press	To
	Power on the DVD player
	Select chapters directly
	Search chapters forward or backward
	Play DVD
	Stop
	Pause
	Move the cursor in the menu
	Display the DVD menu

***** When operating your non - TV AV equipment with the remote control, refer to operation instructions of your original remote.

INFORMATION (continued)

Troubleshooting

Before calling service personnel, please check the following chart for a possible cause to the trouble you are experiencing.

Symptom	Check these things
No power supply	• Make sure the power cord is plugged in and turn on the main power switch.
Poor color/hue	• May be the misadjustment for contrast, color and hue.
Spots appear on the screen.	• May be jamming from cars, motorcycles, electric trains, high tension lines,neon signs, hair dryers, etc.
Stripes appear on the screen.	• May be jamming from other TV receivers, personal computers, and TV games as well as interference from radio station.
Double or triple images	• May be jamming by reflection from nearby mountains or buildings. • Check if the direction of the antenna has changed because of strong wind, etc.
Snowy picture	• Check the antenna/cable connections. • Check if the direction of the antenna has changed.
Abnormal color or no picture	• May be due to improper fast power-on. Power off the projection TV, then power it on again.
The remote control does not work.	• The batteries in the remote control may be exhausted. • Check the orientation of the batteries. • Press TV on the remote control.
Lost password	• “6688” is super password, and allows you will enter “Parent Control”,and therefore change password.
Cannot receive Digital channels	• Check the connections between the DTV receiver and the projecton TV (see page 19). • Check your local listing to find out if you can receive digital broadcasts in your area.
Some channels missing with Browsing Channel Function	• Use Auto Search in the Tune Menu to add receivable TV channels that are not presently in TV memory(see page 35).

INFORMATION (continued)

Specifcations and Accessories

Projecton system	3 picture tubes, 3 leses, horizontal in-line system
Picture tube	7-inch high-brightness monochrome tubes, with optical
Rated voltage	AC: 120V, 60Hz
Rated power consumption	~280W
Dimensions	GB43HD09:~940mm(w) x 1190mm(h) x 560mm(d) GB51HD09:~1092mm(w) x 1420mm(h) x 560mm(d)
Weight	GB43HD09:~61kg GB51HD09:~70.5kg
Projection screen (Effective screen sjze)	GB43HD09:~876mm(w) x 656mm(h) GB51HD09:~1035mm(w) x 778mm(h)
Channel coverage	VHF 2~13 UHF 14~69 CABLE TV : MID BAND(A-8~A-1,A~1) SUPER BAN43D (J~W) HYPER BAND (AA~22,AAA,BBB) ULTRA BAND (65~94,100~125)
Channel preset	181
Television system	NTSC,American TV Standard
Number of inputs/outputs	Video(IN): 3 1Vp-p,75 ohms unbalanced,sync negative S Video(IN): 3 Y:1Vp-p,75 ohms unbalanced,sync negative C:0.286Vp-p (Burst signal),75 ohms Audio(IN): 5 500mVrms(100% modulation) Impecance:47 kiloohms MONITOR OUT: 1 Video:1Vp-p 75 ohms unbalanced,sync negative Audio:500 mVrms at the maximum volume setting (Variable) 500mVrms (Fixed) Impedance:1 kiloohm Component Video IN: 2 (Y,P_B,P_R) Y: 1Vp-p,75 ohms unbalanced,sync negative P_B: 0.7Vp-p,75 ohms P_R: 0.7Vp-p,75 ohns
Antenna input	75Ω(unbalanced)
Audio output	≥15W+15W(THD=7%)
Accessories supplied	Operation manual Universal remote control LR03WCH alkaline batteries(2)

Designs and specifications are subject to change without notice.

LIMITED UNITED STATES WARRANTY

Apex Digital, Inc makes the following limited warranties. These limited warranties extend to the original consumer purchaser or any person receiving this product as a gift from the original consumer purchaser and to no other purchaser or transferee.

Limited One - Year Warranty
Apex Digital, Inc warrants this product and its parts against defects in material or workmanship for a period of one (1) year after the date of original retail purchase. During this period Apex Digital, Inc will repair or replace a defective part or product at their option, with a new or refurbished part or product, without charge to you. " Authorized " Apex Digital, lnc Service Center personnel will come to your home when warranty service is required. Depending on the type of repair required, the service will either be performed in your home or the set will be taken to the Authorized Apex Digital, lnc Service Center's repair facility for repair and then returned to your home at no cost to you.

Limited Two Year Warranty
Apex Digital, lnc further warrants the picture tube in this product against defects in materials or workmanship for a period of two (2) years after the date of original retail purchase. During this period Apex Digital, Inc will replace the defective picture tube or product at their option with a new or rebuilt picture tube or at their option replace the entire product with a new or refurbished product at no charge to you; if however the defective picture tube or product is replaced after one (1) year from the date of the original retail purchase, you pay all labor, packing, transportation and insurance charges involved in the replacement.

Rental Product
The warranty for a rental product begins with the original date of receipt by the rental firm.

Your Responsibility
The above warranties are subject to the following conditions:

-
- You must retain your bill of sale to provide proof of purchase
- All warranty service of this product must be made by an Authorized Apex Digital, Inc Service Center
- These warranties are effective only if the product is purchased and operated in the U S. A.
  Labor service charges for set installation, setup, adjustment of customer controls and installation or repair of any type of antenna or cable systems are not covered by this warranty. Reception problems caused by inadequate antenna or cable
- system are your responsibility.
  Warranties extend only to defects in materials or workmanship as limited above and do not extend to any product or parts which have been lost or discarded by you or damage to product or parts caused by misuse, accident, damage caused by Acts of God, such as lightning or fluctuations in electrical power, improper installation, improper maintenance or use in violation of instructions furnished by us, or to product which has been modified or had the serial number removed, altered, defaced or rendered illegible.

How to Obtain Warranty Service
lf after following all the operating instructions in this manual and reading the section Troubleshooting you find that service is necessary:
1. Contact our Customer Service Center directly call 866 4 APEXINC (866 427 --3946), Mon -- Fri 8am --5pm (Pacific Time)
2. After obtaining the requested information. You must present your bill of sale to the Authorized Service Center to obtain warranty service.
3. Authorized Apex Digital, Inc Service personnel will come to your home when warranty service is required. Depending on the type of repair required, the service will either be performed in your home or the set will be taken to the Authorized Service Center's facility for repair and then returned to your' home.

Limitations
All warranties implied by state law, including the implied warranties of merchantability and fitness for a particutar purpose , are expressly limited to the duration of the limited warranties as set forth above. With the exception of any warranties implied by state law as hereby limited, the foregoing warranty is exclusive and in lieu of all other warranties, guarantees. agreements and similar obligations of manufacturers or seller with respect to the repair or replacement of any parts. ln no event shall Apex Digital, Inc be liable for consequential or incidental damages.

No person, agent, distributor, dealer or company is authorized to change, modify or extend the terms of these warranties in any manner whatsoever. The time within which action must be commenced to enforce any obligation of Apex Digital, lnc arising under this warranty or under any stature, or law of the United States or any state thereof, is hereby limited to ninety (90) days from the date you discover or should have discovered the defect. This limitation does not apply to implied warranties arising under state law.

This warranty gives you specific rights and you may also have these rights which may vary from state to state. Some states do not allow limitation on how long an implied warranty lasts, when an action may be brought, or the exclusion or limitation of incidental or consequential damages, so the above provisions may not apply to you.

Packing List

NO.	Parts	Quantities	Remarks
1	Projection TV Receiver	1	
2	Universal Remote Control	1	
3	Operation Manual	1	
4	LR03WCH Alkaline Batteries	2	